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was still less at home in *Trichostomum*. It has with us sometimes been confused with *Gymnostomum* or *Hymenostylium*. Holzinger's *b* under *No. 29* of his exsiccati is, for example, this species and not *Gymnostomum curvirostrum scabrum* as labeled. Kindberg's *Gymnostomum platyphyllum* (*Hymenostylium platyphyllum* Broth.) is a synonym of *Didymodon tophaceus*. I am strongly disposed to believe that *Didymodon tophaceus*, which is also of European distribution, is the highest link in a chain of naturally related forms starting with the two (or three?) European species of *Weisiodon* (*Gyroweisia*) and including as intermediate forms of whatever rank the Mexican *Haplohymenium* (*Gyroweisia*) and the Bolivian *Gyroweisia*, whereby it may be remarked that the others can as well or better be understood as secondary phylogenetic developments, by reduction, from the higher type of the more widely distributed *Didymodon tophaceus*.

As my conclusions are essentially negative, I shall not discuss in further detail the characters of the various species referred to, but leave my results as a suggestion to the future monographer, who among this as among many other groups of mosses is at present more needed than the species or genus-maker. To recapitulate briefly, my conclusions are:

1. *Gyroweisia* Schimper, 1876, is antedated by *Weisiodon* Schimper, 1855, and should be relegated to synonymy.
2. *Gyroweisia tenuis* does not occur in North America, reports of it being due to errors of identification..
3. *Gyroweisia Barbula*, *G. barbulacea*, and *G. obtusifolia* from tropical or subtropical North America do not belong in this genus (*Weisiodon*).
4. I have expressed the subjective opinion, backed by no detailed statement of facts, that if *Weisiodon* is to be extended beyond the original European (and North African) application, it should most naturally include the moss known as *Didymodon tophaceus* and related forms.

ITHACA, N. Y.

A PRELIMINARY REPORT ON THE LICHENS OF WESTERN PENNSYLVANIA

GIOVANNI I. GIARDINI

In connection with my candidacy for the degree of Master of Science in the University of Pittsburgh, my thesis was written on the Lichens of Western Pennsylvania. The following annotated list presents briefly the main results of this study.[1]

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[1] An examination of Mr. Giardini's list emphasizes that the lichen flora of the region embraced is very imperfectly known. Many of the species are represented by but a single collection and one can but wonder how many more species are here but have so far been overlooked. It is not at all improbable that, with the wanton denudation and waste of much of our area that was once densely forested, the lichen flora is radically changed and probably is actually increasing in number of species. A large number of the Lichens are preeminently pioneers in denuded or bare habitats, such as bare soil and rock, and it is certain that the extent of this kind of habitat at least has been much enlarged. Our Cladonia flora, at least, has a much more extended area suitable for it

The specimens reported in the following list are all in the Herbarium of the Carnegie Museum, where most of the work on my thesis was done. Many of the specimens were named a few years ago by Mr. G. K. Merrill, the Usneas having been named by Dr. R. Heber Howe, Jr. Of the other specimens reported on in this list, about half of the total number, the identifications were accomplished during the course of my studies, and, of these latter specimens, about half were examined and checked-over by Prof. C. C. Plitt, to whom many thanks are due. A few specimens which did not appear in my thesis are included in the following list:

1. *Endocarpon aquaticum* A. Zahlbr., Krypt. Exsicc. 1901. On more or less submerged rocks or on earth. Cheat Haven, Fayette Co., Sept. 3, 1910, O. E. and G. K. Jennings.
2. *Endocarpon aquaticum euplocum* (Ach.) A. L. Sm. On blocks of Homewood Sandstone at the bottom of the Conoquennessing Gorge below Ellwood City, Beaver Co., Oct. 3, 1914, O. E. Jennings.
3. *Dermatocarpon miniatum* (L.) Th. Fr., Lich. Art. 1860. On a limestone out-crop near Van Emmon, Washington Co., April, 1922, O. E. Jennings.
4. *Amphiloma lanuginosum* (Hoffn.) Nyl., Soc. Linn. Bord. 1856. On rocks, trees and more rarely on soil. This is probably the most prominent lichen in the Pittsburgh district. It has been collected also in the following counties: Erie, Crawford, Fayette, and Butler, various collectors. No doubt it occurs in the other counties as well.
5. *Graphis scripta* (L.) Ach., Lich. Univ. 1816. On black oak, Pymatuning Swamp, Linesville, Crawford Co., June 11, 1907, O. E. Jennings.
6. *Coenogonium interpositum* Nyl. On limestone in the spring at Bedford Springs, Bedford Co. (not submerged), O. E. Jennings. This particular locality is well sheltered, so that changes of temperature thruout the year are, comparatively, within a small range. Otherwise, most species of this genus are tropical or semitropical according to most reports. It has been reported from West Virginia from about the same latitude.[2]
7. *Biatorella simplex* (Dav.) Br. & Rostr., Tidssk. **3**: 241. 1869. On sandstone with *Lecidea albocoerulescens*, Falls Run, Glenshaw, Allegheny Co., O. E. Jennings, Sept. 17, 1921.
8. *Lecidea contigua* Fr., Sched. Crit. Lich. Exsicc. Suec. **13**: 14. 1827. On sandstone boulder in ravine across river from Johnetta, Armstrong Co., O. E. Jennings, Oct. 3, 1921; Fern Hollow, Pittsburgh, Allegheny Co., G. I. Giardini, Nov. 25, 1921.
9. *Lecidea contigua hydrophila* Fr., Lich. Fur. p. 300. 1831. On sandstone Ohio Pyle, Fayette Co., O. E. & G. K. Jennings, Sept. 1–3, 1906.

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than was the case before deforestation, and it seems to have occupied the cleared idle lands much as has Crataegus among the flowering plants. Here is a good problem for some one to work out—Is our lichen flora increasing, and if so, how?—O. E. JENNINGS

[2] "Growing with thallus of a *Cladonia*. Fayette: near Quinnimont (*Pollard & Maxon*, 141, sterile." —C. F. Millspaugh, The Living Flora of West Virginia. W. Va. Geol. Surv. **5** : A: **P** . **I**: 159. 1913.

10. *Lecidea albocoerulescens* (Wulf.) Schaer., Lich. Helv. Spic. **3**: 142. 1828. On sandstone in bed of creek, Falls Run, Glenshaw, Allegheny Co., O. E. Jennings, Sept. 17, 1921.

11. *Lecidea confluens* (Ach.) Schaer., Spicil. p. 144; Lich. Helv. n. 187. On sandstone in stream bed, near Clarion, Clarion Co., O. E. Jennings & W. H. Emig, Sept. 4, 1921; on sandstone block in bed of Falls Run, Glenshaw, Allegheny Co., O. E. Jennings Sept. 17, 1921. This species is a native of alpine and arctic regions and for this reason, Prof. Plitt, who has seen at least one of the specimens, is somewhat doubtful about the determination.

12. *Baeomyces roseus* Pers., Ust. Ann. Bot. 1794. Mostly on clay soil under various conditions; common along roadside banks and slopes. It has been reported from several counties, namely: Westmoreland, Cambria, Fayette, Armstrong and Clarion, various collectors.

13. *Cladonia rangiferina* (L.) Web. Wig. Prim. Fl. Hols. 90, 1780, pro parte. Mostly on humus. In Bedford Co., near Bedford Springs, it occurs on a limestone field with pines, Kalmia, and Polytrichum, Sept. 13, 1919, O. E. Jennings; and there are three different collections by O. E. Jennings from sand-plain, Presque Isle, Erie County.

14. *Cladonia sylvatica laxiuscula* (Del.) Wain., Mon. Clad. Univ. **1**: 29. 1887. On soil from Morris Farm, Ohio Pyle, Fayette Co., May 30–31, 1908, O. E. Jennings; and from near Carnot, Allegheny Co., J. A. Shafer, 1888–9.

15. *Cladonia bacillaris clavata* (Ach.) Wain., Mon. Clad. Univ. **1**: 1887. On dead wood with *Cladonia ochrochlora ceratodes.* Ohio Pyle, Fayette County, O. E. & Grace K. Jennings, Sept. 1–3, 1906.

16. *Cladonia macilenta* Hoffm., Deutsch. Fl. **2**: 126. 1795. On humus, Slippery Rock Creek, Lawrence Co., Miss Susan Gageby, 1906.

17. *Cladonia coccifera* (L..) Willd. Fl. Berol. Prodr. 361. 1787. On soil, Kittaning, Armstrong Co. This is a rather doubtful specimen.

18. *Cladonia cristatella* Tuck., Amer. Jour. Sci. **25**: 428. 1858. Common on dead wood, often found on humus or soil. This is a very common form, having been reported from different counties. In Erie County it is found on the sand plains of Presque Isle. It has been found also in Allegheny, Lawrence, Jefferson, Fayette, Elk, Crawford, Blair, Center, Somerset, Washington, Armstrong, and Butler counties. It is probably one of our most common species. Often it occurs with other forms, such as *C. ochrochlora ceratodes*, *C. pyxidata neglecta*, and *C. caespiticia.*

19. *Cladonia cristatella vestita* Tuck., Syn. N. A. Lich. **1**: 255. 1882. Commonly on soil. Nixon Sta., Butler Co., Feb. 3, 1917, and Wildwood, Allegheny Co., Aug. 18, 1919, both Wm. Millward; Rachelwood (Mellon Estate), Laurel Hill Mt., New Florence, Westmoreland Co., Sept. 8–11, 1907, O. E. Jennings; and VanEmman, Washington Co., April, 1922, O. E. Jennings.

20. *Cladonia didyma* (Fee) Wain. Mon. Clad. Univ. **1**: 137. 1887. One specimen on old wood on moss, Ohio Pyle, Fayette Co., O. E. & G. K. Jennings.

21. *Cladonia pulchella* Schwein. One specimen only in the collections: On old wood together with mosses, Morris farm, Ohio Pyle, Fayette Co., O. E. & Grace K. Jennings, Sept. 1–3, 1907. Determined by Mr. G. K. Merrill who indicated on the label his belief that this species belongs, as a variety, to *C. didyma.*

22. *Cladonia furcata* (Hud.) Schrad., Spic. Fl. Germ. 107. 1794. Commonly occurring on rich soil and with mosses, more rarely on clay and sandy soil. The specimens are from several counties, namely: Washington, Armstrong, Butler, Allegheny, Center, Clinton, and Lawrence.

23. *Cladonia furcata racemosa* (Hoffm.) Flk., Clad. Comm. 152. 1826. Commonly on humus and with mosses, sometimes with *C. furcata,* as in the specimen from Tussey Mt., near Shingletown, Center Co., July 15, 1909, O. E. Jennings; also specimens from Carnot, Allegheny Co., J. A. Shafer 1888–89, and Pymatuning Swamp, Linesville. Crawford Co., May 18, 1905, O. E. Jennings.

24. *Cladonia furcata pinnata* (Flk.) Wain., Act. Soc. Faun. Fl. Fenn. 4: 332. 1887. Stoops Ferry, Allegheny Co., Oct. 7, 1905, O. E. Jennings and G. E. Kinzer; Idlewild, Westmoreland Co., Sept. 24, 1907, O. E. Jennings: and five different collections from Fayette County.

25. *Cladonia squamosa denticollis* (Hoffm.) Flk.; (Scop.) Hoffm. Deutsch. Fl. **2**: 125. 1796. Old wood with *C. cristatella,* Somerset Co., D. R. Sumstine. Aug. 8, 1906.

26. *Cladonia squamosa squamosissima* Flk. Common on dead wood and humus. Our specimens come from Somerset, Westmoreland and Fayette Counties. Sometimes it is difficult to distinguish between this and *C. cristatella vestita,* especially if the specimens are infertile. Determined by Mr. G. K. Merrill.

27. *Cladonia caespiticia* (Pers.) Flk., Clad. Comm. 8. 1828. Occurring with a moss on soil, Ohio Pyle, Fayette Co., Sept. 1-6, 1906, O. E. & G. K. Jennings; and with *C. cristatella,* Pymatuning Swamp, Linesville, Crawford Co., June 11–12, 1907, O. E. Jennings.

28. *Cladonia delicata* (Ach.) Flk., Clad. Comm. 7. 1828. One specimen found on Birch tree, Keystone, Somerset Co., Oct. 9, 1904, O. E. Jennings.

29. *Cladonia turgida* Hoffm., Deutsch. Fl. **2**: 127. 1795. One infertile specimen on clay soil, from Morris Farm, Ohio Pyle, Fayette Co., O. E. & G. K. Jennings, Sept. 1–3, 1906.

30. *Cladonia mitrula* Tuck., Darl. Fl. Cestr. ed. **3**: 444. 1853. One specimen from the sand plain of Presque Isle, Erie Co., June 9–11, 1905, O. E. Jennings.

31. *Cladonia cariosa* (Ach.) Spreng., Syst. Veg. **4**: 272. 1827. On soil. Reported from Nixon Station, Butler Co., and Wildwood, Allegheny Co., Aug. 19, 1919, Wm. Millward.

32. *Cladonia subcariosa* (Nyl.) Wain., Mon. Clad. Univ. **2**: 38. 1904. A single specimen occurring on soil from Coraopolis, Allegheny Co., Sept. 9, 1905, O. E. Jennings and Grace E. Kinzer.

33. *Cladonia ochrochlora ceratodes* Flk., Clad. Comm. 77. 1828. On soil, bark or dead wood. This is probably the most common Cladonia so far reported. In Allegheny County it is commonly found on thin soil on rocks. One specimen from Crawford County was found on *Larix*. In Erie County it occurs on the sand-plains of Presque Isle. One specimen from Fayette County occurred on base of *Quercus velutina*. It was also found growing with *C. bacillaris clavata* and in another case with *C. ochrochlora truncata*. It has been collected also at various places in Butler, Beaver, Jefferson, Westmoreland, Washington, Center, Crawford, Somerset, and Armstrong counties.

34. *Cladonia ochrochlora truncata* Flk., Clad. Comm. pp. 77, 78. 1828. On soil and dead wood. It grows under conditions much similar to those of the preceding. Stoops Ferry, Allegheny County, O. E. Jennings & Grace E. Kinzer, Oct. 7, 1905, and Presque Isle, Erie County, June 9–11, 1905, O. E. Jennings.

35. *Cladonia verticillata* Hoffm., Deutsch. Fl. **2**: 122. 1795. On soils of various types: humus, clay, and sand. The specimens are from Bedford, Butler, Crawford, Allegheny, Fayette, Erie and Armstrong Counties.

36. *Cladonia pyxidata* (L.) Hoffm., Deutsch. Fl. 2: 121. 1795. On dead wood and humus. It is less common than the varieties which follow and thus far has been collected only in the following places: Brookville, Jefferson Co., A. R. Hillard, March, 1917; and by Wm. Millward at Nixon Station, Butler Co., Feb. 3, 1917, and Wildwood, Allegheny Co., Aug. 18, 1919.

37. *Cladonia pyxidata neglecta* (Flk.) Mass. Usually on earth rich in humus. Occurred with *C. ochrochlora ceratodes* in Bedford County and with *C. cristatella* in Allegheny County. Specimens were examined from the following counties: Allegheny, Beaver, Bedford, Butler, Cambria, Crawford, Center, Erie, Fayette, Somerset, Washington, and Westmoreland.

38. *Cladonia pyxidata chlorophea* (Spreng.) Flk., Cl. Comm. 70. 1828. On rich soil usually. In Allegheny Co., it has been found growing with *Parmelia* and in Bedford Co. with *C. verticillata*. Specimens have been collected also in Washington, Butler, Huntingdon and Armstrong Counties.

39. *Cladonia pyxidata staphylea* Mudd., Britt. Clad. p. 7, pro parte. On dead wood, Erie Co., Gustave Guttenberg, 1878–79. The determination is doubtful.

40. *Cladonia fimbriata apolepta* (Ach.) Wain., Act. Soc. Faun. Fl. Fenn. **10**: 307. 1894. On humus; a single specimen from Wildwood, Allegheny Co., Wm. Millward, July 14, 1919.

41. *Cladonia fimbriata fibula* Nyl., ex. Norrl. in Med. Saellk. Faun. & Fl. Fenn. **1**: 12. 1876. A single specimen on dead wood, from near Somerset, Somerset Co., D. R. Sumstine, Aug. 8, 1906.

42. *Gyrophora Muhlenbergii* Ach. Lich. Univ. 227. 1810.· Single specimen occurring on rock from Somerset, Somerset Co., D. R. Sumstine, Aug. 8, 1906. Mr. G. K. Merrill in 1914 determined this specimen as an unnamed variety.

43. *Gyrophora Dillenii* (Tuck.) Arn., Oesterr, Bot. Zeitschr. **1896**: 16. 1896, On rocks. Specimens have been collected in four counties: Crawford, Westmoreland, Fayette (numerous specimens), and Franklin.

44. *Umbilicaria pustulata* (L.) Hoffm., Descr. Pl. Crypt. **2**: 13. 1794. A single specimen on rocks from the top of Stony Mt., Mt. Alto, Franklin Co., April 23, 1919, O. E. Jennings.

45. *Umbilicaria pustulata papulosa* (Ach.) Tuck., Syn. Lich. N. E. 70. 1848. On sandstone rocks, Wills Mt., near Hyndman, Bedford Co., Oct. 9, 1904, O. E. Jennings, growing together with *Gyrophora Dillenii*; exposed sandstone rocks on brow of Chestnut Ridge, east of Hillside, Westmoreland Co., O. E. Jennings and others, May 25, 1907, and Oct. 11, 1917.

46. *Pannaria rubiginosa* (Thunb.) Del., in Bory. Dict. Class. Nat. Hist. **13**: 20, 1828. Only one specimen in the collections: Bark of *Fraxinus nigra.* along shore of Conneauttee Lake, Edinboro, Erie Co., June 22, 1919, O. E. Jennings and J. C. Fetterman.

47. *Sticta amplissima* (Scop.) Mass., Mem. Lich. 28. 1853. On tree trunks and twigs, rarely on humus. In Center County it was found on Chestnut; in Crawford County on *Fraxinus nigra*; in Fayette County on Red oak; in Allegheny County on humus with *Parmelia rudecta*; and on tree bark, Westmoreland County.

48. *Sticta pulmonaria* (L.) Schaer., Enum. Lich. Eur. 30. 1850. On bark near Carnot, Allegheny Co., J. A. Shafer, 1888–9. (Pr. parte f. *hypomela.*—G. K. Merrill).

49. *Nephroma resupinata* (L.) Ach., Lich. Univ. 522. 1810. No data of habitat; probably on rock. This single specimen was collected by Kate Stoy in Nov. 1889, Chestnut Ridge, near Latrobe, Westmoreland County.

50. *Peltigera aphthosa* (L.) Willd., Fl. Berol. Prodr. 347. 1787. Commonly on moss and humus. In Washington County it has been found growing together with *P. canina.* Other counties represented by specimens are: Allegheny, Fayette, Westmoreland, Clearfield, Mercer and Greene.

51. *Peltigera horizontalis* (L.) Hoffm., Deutsch Fl. **2**: 107. 1795. On moss and humus, Ohio Pyle, Fayette Co., Sept. 10, 1905, O. E. Jennings and G. E. Kinzer, and Sept. 1–3, 1906, O. E. & G. K. Jennings.

52. *Peltigera polydactyla* (Neck.) Hoffm., Deutsch. Fl. **2**: 106. 1795. A single specimen from the Pymatuning Swamp, Linesville, Crawford Co.,occurring on dead wood and mosses, May 18–19, 1905, O. E. Jennings.

53. *Peltigera canina* (L.) Hoffm., Deutsch. Fl. **2**: 106. 1795. Commonly occurring with mosses on dead wood or humus, in more or less shaded habitats. About 30 different collections from Allegheny, Fayette, Huntingdon, Washington, Clearfield, Mercer, Greene, Crawford, Westmoreland, Cambria, Armstrong, and Clinton counties.

54. *Peltigera canina membranacea* Ach., Syn. Lich. Univ. 518. 1810. There are two counties represented: At the base of a stump in Pymatuning Swamp, Linesville, Crawford Co., May 10–11, 1906, and June 11–12, 1907, O. E. Jennings; and on earth, with mosses, Ohio Pyle, Fayette Co., O. E. Jennings, May 12, 1905.

55. *Peltigera spuria* DC., Fl. Franc. **2**: 406. 1805. A single specimen on soil from the Pymatuning Swamp, Hartstown, Crawford Co., July 19, 1906, D. R. Sumstine.

56. *Lecanora pallida* (Schreb.) Schaer., Enum. Lich. Em. 78. 1850. On trees. Our one specimen comes from Somerset, Somerset Co., collected by D. R. Sumstine, Aug. 8, 1906.

57. *Lecanora subfusca* (L.) Ach., Lich. Univ. 393. 1810. A single specimen from Ohio Pyle, Fayette Co., June 18, 1905, O. E. Jennings and G. E. Kinzer. It was found on *Hicoria alba* together with *Lecidea disciformis* Nyl.

58. *Lecanora varia* (Hoffm.) Ach., Lichen. Univ. 377. 1810. On trunk of *Pinus Strobus*, Presque Isle, Erie Co., May 8–9, 1906, O. E. Jennings.

59. *Lecanora gibbosa* (Ach.) Nyl., Not. Saellsk. Faun. & Fl. Fenn. Foehr. 137. 1866. On sandstone, on hillside, Fern Hollow, Pittsburgh, Allegheny Co., Nov. 25, 1921, G. I. Giardini.

60. *Parmelia perlata* (L.) Ach., Meth. Lich. 216. 1803. On humus, Nixon Station, Butler Co., Wm. Millward, Feb. 3, 1917; Ohio Pyle, Fayette Co. O. E. and G. K. Jennings, Sept. 1–3, 1906; Pymatuning Swamp, Crawford Co., May 18, 1905, O. E. Jennings.

61. *Parmelia perforata hypotropa* Nyl., Syn. Meth. Lich. **1**: 378. 1859. A single specimen from Nixon Station, Butler Co., on rocks, Wm. Millward, Feb. 3, 1917.

62. *Parmelia dubia* (Wulf.) Schaer. Enum. Lich. 45. 1850. Commonly on trees. It was found on *Quercus velutina* on Presque Isle, Erie Co., June 9–11, 1905, O. E. Jennings, and on different trees in Allegheny County.

63. *Parmelia rudecta* Ach., Syn. Meth. Lich. 197. 1814. Usually on trees, rarely on dead wood and mosses. On *Quercus velutina*, Presque Isle, Erie County, Aug. 26, 1905, O. E. Jennings; on *Betula lenta*, in Pymatuning Swamp, Linesville, Crawford Co., May 18, 1905, O. E. Jennings; on *Robinia*, Ohio Pyle, Fayette Co., Sept. 1–3, 1906, O. E. & G. K. Jennings; also represented by various specimens from Allegheny, Butler, and Westmoreland counties.

64. *Parmelia saxatilis* (L.) Ach., Meth. 204. 1803. On *Betula lenta*, Pymatuning Swamp, Linesville, Crawford Co., May 18, 1905, O. E. Jennings; growing mixed with *Ramalina caperata*, Ohio Pyle, Fayette Co., Sept. 1–3, 1906, O. E. & Grace K. Jennings.

65. *Parmelia sulcata* Tayl., Mack. Fl. Hiber. **2**: 145. 1865. Commonly on bark, rarely on earth. Somerset, Somerset Co., Aug. 8, 1906, D. R. Sumstine; and Wolf Creek, near Slippery Rock, Butler Co., S. H. Williams,

March 21, 1921; growing mixed with *Parmelia caperata*, Conneaut Lake Park, Crawford Co., July 17, 1906, D. R. Sumstine.

66. *Parmelia physodes* (L.) Ach., Meth. Lich. 250. 1803. On bark and twigs. A specimen from Pymatuning Swamp, Linesville, Crawford Co., May 18, 1905, O. E. Jennings. consisted of a mixture growing together of *P. physodes*, *P. caperata*, and *Cetraria lacunosa*. Collected again from the same locality June 12, 1905, O. E. Jennings; another found on *Larix*, May 10–11, 1906, consisted of *P. physodes*, *Cetraria lacunosa* and *Evernia furfuracca*. Another specimen was found in Somerset Co.

67. *Parmelia caperata* (L.) Ach., Meth. Lich. 216. 1803. Commonly on bark rarely on humus. In Fayette County it was collected on *Juglans cinerea*; in Somerset County, on *Betula lenta*; in Erie County, on *Quercus velutina* and *Populus deltoides*; in Crawford County it occurred with *P. sulcata*, while in Allegheny it has been found on humus with *P. saxatilis*. It has been collected also from Westmoreland, Huntingdon and Butler counties.

68. *Parmelia conspersa* (Ehrh.) Ach., Meth. Lich. 205. 1803. On sandstone, Montrose, Allegheny Co., Sept. 21, 1905, O. E. Jennings; Bellwood, Blair Co., May 18, 1904, O. E. Jennings; and Somerset, Somerset Co., Aug. 8, 1906, D. R. Sumstine.

69. *Parmelia Nilghertensis* Nyl. No data of habitat, but probably on rock, Pymatuning Swamp, Linesville, Crawford Co., May 18–19, 1905, O. E. Jennings. Determined by Mr. G. K. Merrill.

70. *Cetraria ciliaris* Ach., Lich. Univ. 508, 1810. On bark, Pymatuning Swamp, Crawford Co., June 12, 1905, O. E. Jennings, and Stormstown, Center Co., Apr. 2, 1902, Miss H. E. Wilson.

71. *Cetraria lacunosa* Ach., Meth. Lich. 295. 1803. A single specimen found on *Larix* in Pymatuning Swamp, Linesville, Crawford Co., May 18, 1905, O. E. Jennings.

72. *Evernia furfuracea* (L.) Mann., Livh. Bohem. 105. 1826. On *Larix* with *Parmelia physodes* and *Cetraria lacunosa*, Pymatuning Swamp, Linesville, Crawford Co., May 10–11, 1906, O. E. Jennings.

73. *Evernia furfuracea olivetorina* Lopfh. On *Larix*, Pymatuning Swamp, Crawford Co., May 18, 1905, O. E. Jennings. Determined by Mr. Merrill

74. *Ramalina calicaris subampliata* Nyl., Bull. Soc. Linn. Norm. ser. 2, **4**: 132. 1870. On twigs, Presque Isle, Erie Co., Aug. 26, 1905, O. E. Jennings. Merrill named this *Ramalina subampliata*.

75. *Usnea florida* (L.) Web., Wigg. Prim. Fl. Hols. 91. 1780. On trees and twigs. In Pymatuning Swamp, Linesville, Crawford Co., in mixture with *Parmelia* (*Evernia*) *furfuracea* var. *Cladonia* and *Parmelia physodes*, May 18, 1905, O. E. Jennings; same location on *Larix*, May 10–11, 1906, O. E. Jennings; on oak tree on top of Bald Eagle Ridge, Center Co., near Matternville, Sept. 20, 1909, O. E. Jennings; Jefferson Co., Kate Stoy.

76. *Physcia speciosa* (Wulf.) Nyl., Act. Soc. Linn. Bord. **21**: 307. 1856. On bark, Nixon Station, Butler Co., Wm. Millward, Feb. 3, 1917.

77. *Physcia pulverulenta* (Schaer.) Nyl., Act. Soc. Linn. Bord. **21**: 308. 1856. A single specimen occurring on moss, on humus, near Coraopolis, Allegheny Co., Sept. 9, 1905, O. E. Jennings and G. E. Kinzer.
78. *Physcia pulverulenta leucoleiptes* Tuck., Syn. Lich. N. E. 32. 1848. On humus Montrose, Allegheny Co., Sept. 21. 1905, O. E. Jennings.
79. *Physcia stellaris* (L.) Nyl., Syn. Meth. Lich. **1**: 424. 1858. On trees, Nixon Station, Butler Co., Wm. Millward, Feb. 3, 1917, and on *Populus deltoides*, Presque Isle, Erie Co., four different collections, O. E. Jennings.
80. *Physcia tribacia* (Ach.) Nyl., Fl. **64**: 537. 1881. On trees. Presque Isle Erie Co., on *Populus deltoides* with *Ph. stellaris*, Sept. 20–22, 1906, O. E. Jennings, and Linesville, Crawford Co., Aug, 3, 1909, O. E. Jennings.
81. *Physcia obscura endochrysea* (Hampe) Nyl., Act. Soc. Sci. Fenn. **7**: 440. 1863. A single specimen on bark with *Cladonia ochrochlora ceratodes*, from Idlewild, Westmoreland Co., Aug. 10, 1906, D. R. Sumstine.
82. *Physcia obscura virella* (Ach.) Cromb., Grev. **20**: 78. 1887. On bark with *Amphiloma*, Conneaut Lake Park, Crawford Co., July 18, 1906, D. R. Sumstine.

PITTSBURGH, PA.

REVIEWS

István Gyorffy.—*A Molendoák fajai tagolódása és rokonsága összehasonlító anatomiai és fejlodéstani vizsgálatok alapján.* (A. M. T. Akadémia III osztályának 1921 január 17.—én tartott ülésébol).

The above reprint, bearing the pagination 345–351, I have through the kindness of Mr. Chamberlain been able to examine, the work dealing with a genus of mosses, *Molendoa*, which I have, also, been studying. It is a Hungarian announcement of the author's " *Versuch einer Monographie der Gattung Molendoa*,' upon the preparation of which he has been engaged some seventeen or eighteen years and which is now pretty well finished. Some of the essential results are here outlined in advance in the author's admirably objective and thoroughly scientific manner. Ten previously described species are apparently to be recognized, in addition to seven new ones mostly credited to Brotherus. The latter, which are here *nomina nuda*, include *M. obtusifolia* Broth. twice, in the one case doubtless a slip for some other name. The author discusses the nature of a species, but without dogmatism. He is inclined to conceive of it as a series or rather group of forms clustered about a typical center. Uncommon forms lying toward the periphery of the enclosing circle may be transition-forms to the next species; that is, the two species-circles may slightly overlap. In this way he notes three transition-varieties connecting the three European species of *Molendoa* with one another and includes a diagram illustrating the relationship of all European forms recognized. He also speaks of forms which seem to lie somewhat between *Molendoa* and *Hymenostylium*, but rejects the idea that they

Page 46, line 6, for *Frulliana* read *Frullania.*

Page 49, line 1, for *wahlenbergii* read *Wahlenbergii.*

Page 49, between lines 6 and 7, insert:

SWARTZIA MONTANA (Lamarck) Lindb. Moist shaded limestone edges; local near the shore on Mackinac Island.

Page 52, line 9 from bottom, for *Pterigyandrum* read *Pterygynandrum.*

Page 56, line 2 from bottom, for *Eurynchium* read *Eurhynchium.*

Page 65, line 22 for *cupressiforme* read *cupressiformis.*

Page 65, line 24, for *curvifolium* read *curvifolius.*

Page 73, line 16 from bottom, for *Teloschistes* read *Theloschistes.*

Page 77, line 8 from bottom, " " " "

Page 79, line 2 from bottom, for *lanuginosa* read *lanuginosum.*

Page 80, at bottom of page add:

50. (*Lecidea intermixta* Nyl,) 121. *Patellaria Clavus* D.C.)
129. (*Synechoblastus rupestris* (Sw.) A. L. Sm.)

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Page 106, line 5 from bottom, for *Ramalina caperata* read *Parmelia caperata.*